

would be one of murder, and the latter one of unjustifiable slavery. It is clear, therefore, that for the purpose of lucid statement we ought to be supplied with some definition of the sense in which the author supposes the rights of animals to be comparable with those of man. And it is because this definition is nowhere supplied that we deem the work unsatisfactory. That animals, as sentient creatures, have *some* rights—*i.e.*, that man may not kill or torture them needlessly without incurring *some* moral blame—no one nowadays would undertake to dispute.¹ It therefore seems useless to fill a number of pages with a number of truisms on the theme that animals have some rights in common with man. From the writer of "a new essay in ethics" we expected to find a statement of the principles by which the rights of animals ought to be defined—in what they resemble and in what they differ from the rights of man, and why. But instead of this we find only the statement of a fact which it does not require "a new essay in ethics" to reveal, *viz.*, that the immorality of subjecting animals to needless death or torture cannot be justified on the ground of any such irrelevant or untrue arguments as that animals are irrational, not immortal, or non-sentient. Such being the whole scope of the work, it seems to us to be about a century too late in appearing.

At the present time, when the ethics of vivisection and kindred questions are being so warmly discussed, there is a good opportunity for a competent essayist to write an interesting, if not valuable treatise, on the basis, the nature, and the extent of animal rights, as well as the ways and degrees in which these rights ought to be respected by man. The latter subject is lightly touched by Mr. Nicholson in his concluding chapter, entitled "Limitations in Practice." His view appears to be that man has no moral justification in taking the life of any animal, which is not either directly "harmful" to himself or in competition with him in "the struggle for food." Therefore Mr. Nicholson considers it immoral to eat shrimps and lobsters, seeing that they neither "hamper man's comfort nor eat up his food." Criticism here is sufficiently easy. Among animals themselves the only right is might, and therefore if a lobster could argue with a philosopher it is difficult to see on what grounds he could convince the superior animal that the latter has less right to eat him than has his brother lobster. If the lobster were to urge that the philosopher is not merely an animal but a moral animal, the philosopher might answer that he cannot see any moral justification of the lobster's view that the right of an edible animal to live is superior to the right of an eating animal to kill. And if the lobster were unfortunate enough to quote Mr. Nicholson as an authority to prove that man has a moral right to kill only "hurtful" animals, it would be competent for the philosopher to reply that if man has a moral right to promote his own happiness by killing animals which cause him harm or annoyance, it is impossible to see why he should not have a similar right to promote his own happiness by killing all animals that serve him for food.

¹ Dr. Whewell is probably the last of competent writers who has done so in the past or is likely to do so in the future. It is remarkable, by the way, that Mr. Nicholson does not quote the passage in which Dr. Whewell sneers at Bentham for maintaining the rights of animals as sentient creatures, for this passage, especially as answered by Mill, would have gone further to argue the existence of obtuseness upon this subject than does any other fact which is mentioned by Mr. Nicholson.

Lastly, if the lobster were to argue that his enemy might secure a doubly beneficial end by limiting his diet only to such animals as are noxious, the philosopher would be compelled to observe that he happened to prefer lobster salad and roast lamb to boiled snakes and rat-pie.

The same inconsistency of principle is displayed where Mr. Nicholson treats of vivisection. He says "much against my feelings I do see a warrant for vivisection in the case of harmful animals and animals which are man's rivals for food." But if man has a moral right to slay a harmful animal *in order to better his own condition*, he must surely have a similar right to slay a harmless animal, *if by so doing he can secure a similar end*. And of course it is the opinion of all sufficiently informed persons that vivisection has been of more service in bettering the condition of humanity than has the destruction, say, of wolves, bears, and tigers, wherever these animals have been destroyed.

OUR BOOK SHELF

Proceedings of the Aberdeenshire Agricultural Association, 1878.

WE have already noticed the earlier field experiments made by this Association. The most prominent fact which they believe they have established is the efficacy of mineral phosphates, when in fine powder, as a manure for turnips. Such phosphates have always been treated with sulphuric acid, and converted into superphosphate before being employed as manure; to employ them in fine powder without this previous treatment would of course be more economical, if they are in this state sufficiently effective.

It would be easy to criticise the experiments on which the above conclusion is based; we might especially point out the very different results which the same manure has yielded on different plots of the same land. The manure has also apparently been incorporated with the soil in a far more perfect manner than would be possible in agricultural practice, and the solvent action of the soil has thus been greatly aided. We must leave therefore any conclusion as to the feasibility of employing finely powdered apatite or coprolite as a manure until repeated trials have been made on a large scale. There are, however, a few facts in the chemistry of the question to which we should like to call attention.

If we were asked to describe a soil which should exercise the greatest solvent action on phosphate of calcium, we should certainly name one containing much humic matter, and little or no carbonate of calcium. The humic matter, and the carbonic acid produced from it, would act as a tolerably powerful solvent for the phosphate, if carbonate of calcium were not present to neutralise their efficacy. Now the granite soils of Aberdeen belong precisely to the class of soil just described; if, therefore, it should be finally proved that finely-powdered mineral phosphates are almost as effective as superphosphate on land of this character, it will by no means follow that the same result will be obtained if the phosphate is applied to other soils, and especially to those derived from limestone rocks.

As to the effect of nitrogenous manures on the turnip crop, the conclusion first arrived at by the Association has been somewhat modified. In the previous report it was stated that the only effect of nitrogenous manure was to increase the amount of water in the crop; this extraordinary conclusion has not been confirmed by the succeeding experiments. As the turnip crop contains a large amount of nitrogen as a necessary constituent, it is clearly ridiculous to speak of nitrogenous manures as

only capable of increasing the proportion of water in the crop; if nitrogenous manures are found in any case to be of little value, it is not because the plant does not require nitrogen, but simply because the soil supplies an abundance without the aid of manure. Concerning the richness of the experimental soils in nitrogen nothing is said. Mr. Jamieson, the chemist of the Association, has, however, stated in another publication that the Aberdeenshire soils usually contain 0.4 per cent. of nitrogen. If this is the case, there is little reason to wonder at the small effect of nitrogenous manures. The amount of nitrogen just named is far in excess of that usually found in arable soils, and about equal to what we should expect to find in the soil of a well-manured kitchen garden.

The percentage of water in a plant is always increased by anything which increases its luxuriance: a big turnip is sure to contain a greater proportion of water than a little one. If, therefore, we are to condemn manures simply because they increase the percentage of water, we may as well stop manuring altogether. It is quite right, however, that the percentage of water in the produce should be taken into account in comparing the effect of different manures, as it is clear that only the dry matter of the crop can have any feeding value.

The experiments, as before, exhibit a vast amount of painstaking work, and cannot fail, if continued in the same spirit, to be of service to the farmers of Aberdeen.

A History of British Freshwater Fishes. By the Rev. W. Houghton, M.A., F.L.S., Rector of Preston-on-the-Weald Moors, Wellington, Shropshire. Two volumes, extra large 4to. (Copies to be obtained from the author at the above address.)

THE most complete monograph on this branch of natural history which has yet appeared, several species of *Salmonidae* being illustrated for the first time. The coloured figures and the engraved lake and river scenes, which head each chapter, are admirable works of art. The book is exquisitely got up, and is well suited to the drawing room table. At the same time, it is of real scientific value to the amateur ichthyologist, the descriptions and plates rendering the species of easy identification. The preliminary chapters on the classification and anatomy of fishes are carefully written and well illustrated. The work will add to Mr. Houghton's reputation as an intelligent and accomplished naturalist. C. C.

LETTERS TO THE EDITOR

[The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts. No notice is taken of anonymous communications.]

[The Editor urgently requests correspondents to keep their letters as short as possible. The pressure on his space is so great that it is impossible otherwise to ensure the appearance even of communications containing interesting and novel facts.]

The Price of the "Memoirs of the Geological Survey"

THE publication of Mr. Skertchley's "Manufacture of Gun Flints," in the Memoirs of the Geological Survey, seems to be a good opportunity for again bringing under notice the absurd price charged for some of the Survey volumes. In NATURE, vol. xviii. p. 562, Prof. Boyd Dawkins drew attention to this subject, and urged the necessity of issuing the "Memoirs" at a reasonable price; but this last publication shows that the Stationery Office does not intend to mend its ways, but will still try and put the information it issues as far as possible out of the reach of the public. The fact I should like to draw attention to as regards the price of the "Memoirs" is the absurdity of the amount charged for some of the volumes, as proved by others issued by the Survey; and a glance at the facts seems to show that the prices are fixed without any regard to the size or quality of the book. Mr. Skertchley's pamphlet consists of 80 pp. and 71 figs., and this, in a paper wrapper, is priced 17s. 6d.! Now, take Prof. Judd's "Geology of Rutland," this contains 320 pp.

(or exactly four times as many as Mr. Skertchley's) 11 plates and 19 woodcuts, and the price of this, in cloth, is 12s. 6d., or 5s. less than the one of 80 pp. Another example is Mr. De Rance's Memoir on the "Superficial Geology of the Coasts of South-west Lancashire," which consists of 139 pp., and 20 woodcuts, and for which we have to pay 17s.; compare with this Mr. Woodward's "East Somerset and Bristol Coalfield," containing 271 pp., 9 plates, and 23 woodcuts, which is only one shilling more than the last-named, and is issued in cloth. But perhaps the most curious two to take together are Mr. Skertchley's volume on the "Fenland," and Prof. Green's "Report on the Yorkshire Coalfield." The former of these contains 335 pp., 24 plates, and 36 woodcuts, and is published at 2l., the latter has 823 pp., 26 plates, and 125 woodcuts, and yet the price is only 2l. 2s. It is certainly hard to understand why we should be charged 2l. for Mr. Skertchley's volume, if one the size of Prof. Green's can be produced for 2l. 2s. One would imagine that books issued with the public money would be sold as cheaply as possible; and it is to be hoped that some friend to Science in Parliament will ask a question of the Government, and see if it is absolutely necessary that these Memoirs should be published at such famine prices.

Oxford

JAS. B. BAILEY

The Sea-Serpent

IN NATURE, vol. xix. p. 286, I observed some remarks respecting sea-serpents, and especially noted one passage which stated that "The age of incredulity is past, and naturalists are now prepared to admit that several distinct kinds of oceanic monsters probably exist."

I was pleased to read this statement, as I have for many years been convinced that some of the accounts published from time to time in the newspapers are accurate descriptions of what has actually been witnessed, but I little expected that I should so soon be able to forward to you a description of one of these creatures, as given by an eye-witness, of whose accuracy there can be no question, and whose observations were made when very close to the animal.

Busselton is a little seaport about 150 miles south of Fremantle, on the west coast of Australia, situated on the shore of Geographe Bay, which is sheltered by Cape Naturaliste; the northern point of that singular projection on the south-west corner of Australia.

During the greater part of the year the water of Geographe Bay is as smooth as a lake, though it is a portion of that vast Indian Ocean which extends unbrokenly to the African coast. The beach is of smooth white sand, so hard at the water's edge that it is frequently used as a road for riding or driving from Busselton to Lockville; the latter place, a few miles to the north, is the station of the Ballarat Timber Company, containing their steam saw-mills, the termination of their railway, and the jetty from which large quantities of that imperishable and valuable timber called jarrah is exported to be used as piles, railway sleepers, &c.

Last month I heard a report that the sea-serpent had been seen near Busselton, and that the resident clergyman had been one of the spectators. Having the pleasure of personal acquaintance with that gentleman, I wrote to him on the subject, and received from him such an interesting account, that I applied to him for permission to communicate the facts to your paper, and verify them by publishing his name. It is fortunate that the principal eye-witness was an educated gentleman, who has for twenty-seven years been a Colonial chaplain in this colony, and whose description of what he saw is clear, simple, and free from exaggeration.

I copy from the letters of the Rev. H. W. Brown the following extracts:—

"On Sunday, March 30, I left Lockville just as the sun was setting, on my way home by the beach.

"The afternoon had been oppressively hot, not a breath of wind, and the sea was as smooth as a glass. I met C. McGuire and his wife walking towards Lockville.

"Soon afterwards, when abreast of the track to Richardson's, I noticed ahead of me what looked like a black log of wood in the water a stone's throw from the shore, nearly end-on to me, and apparently more buoyant at that end; getting nearer, I noticed that it was drifting apparently towards Lockville, and soon discovered that it was moving, leaving behind it a very long, narrow ridge on the smooth water. I then turned my horse's head, and, at a walking pace, kept just abreast of it, un-